Docket No.: 826.1696

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Hajime ENOMOTO

Serial No. 09/804,143 Group Art Unit: 2126

Confirmation No. 8633

Filed: March 13, 2001 Examiner: Phuong N. Hoang

For: INFORMATION PROCESSING APPARATUS

APPEAL BRIEF

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

I. Real Party in Interest

The inventor, Hajime Enomoto, assigned all rights in the subject application to FUJITSU LIMITED on February 23, 2001 according to the Assignment executed February 23, 2001 and submitted for recordation on August 13, 2001 and recorded at Reel 012069, Frame 0986. Therefore, the real party in interest is FUJITSU LIMITED.

II. Related Appeals and Interferences

There are no related appeals or interferences known to Appellant, Appellant's legal representatives or the Assignee, FUJITSU LIMITED, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 1-11 are pending in the application and claims 1-11 stand rejected under 35 USC § 103(a). Claims 1-11 are being appealed.

IV. Status of Amendments

No Amendment was filed in response to the January 26, 2005 Office Action.

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V. Summary of Claimed Subject Matter

A. Claim 1

The subject matter of independent claim 1 is an information processing apparatus having an object network as a language processing function and a common platform as an interface function with clients (page 1, lines 7-10; page 11, lines 13-15; Fig. 1). An object contained within the object network has a hierarchical structure with four types of software models: a data model, an object model, a role model and a process model (page 11, line 20 to page 12, line 9; page 51, lines 13-22; Fig. 1). The process model is the highest model in the hierarchy and defines a dynamic process that a set of role models cooperatively execute (page 12, lines 7-9; Fig. 1). The role model is a level lower than the process model in the hierarchy and represents the content of a process executed by a set of object models (page 12, lines 3-6; page 56, lines 7-21; Fig. 1). At a level lower than the role model is the object model (page 12, lines 1-3; page 52, lines 12-15; Fig. 1). At a level lower than the object model is the data model which represents an attribute structure as a set of templates (page 11, lines 23-25; page 51, line 23 to page 52, line 9; Fig. 1).

B. Claim 11

The subject matter of independent claim 11 is an object network of hierarchically arranged models (page 1, lines 5-12; Fig. 1) on a medium readable by a computer (page 87, lines 2-17; page 88, lines 9-14). The hierarchy includes four types of software models: data models, object models, role models and at least one process model (page 11, line 20 to page 12, line 9; page 51, lines 13-22). Each process model defines a dynamic process that a set of role models execute (page 12, lines 7-9). Role models are a level lower than the process model in the hierarchy (Fig. 1). Each role model defines an operation that a set of object models execute (page 12, lines 2-3; page 56, lines 7-21). At a level lower than the role model is the object model (page 12, lines 1-3; page 52, lines 12-15; Fig. 1). At a level lower than the object model is the data model (page 11, lines 23-25; page 51, line 23 to page 52, line 9; Fig. 1).

VI. Issues to be Reviewed on Appeal

The Examiner rejected claims 1, 3-8, and 11 as unpatentable over U.S. Patent No. 6,574,617 ("Immerman et al.") in view of U.S. Patent No. 6,067,548 ("Cheng"). The Examiner also rejected claims 2 and 10 based on Immerman et al. in view of Cheng and U.S. Patent No. 5,937,402 ("Pandit") and claim 9 based on Immerman et al. in view of Cheng and "admitted prior art" on pages 1-3 of the application.

The following are issues in this appeal:

(1) Whether claim 11 is patentable over Immerman et al. in view of Cheng.

(2) Whether claims 1 and 3-8 are patentable over Immerman et al. in view of Cheng. As claims 1 and 3-8 stand or fall together, only claim 1 is discussed.

(3) Whether Pandit or a prior art WELL system suggests modification of Immerman et al. and Cheng to meet the limitations recited in claims 1 and 11 as well as the limitations recited in claims 2, 9 and 10.

VII. Argument

A. Explanation of Relevant Portions of Prior Art

1. Immerman et al.

The Examiner relies on Fig. 2 of Immerman et al. and the detailed description thereof in column 5, line 13 through column 6, line 50. Figure 2 of Immerman et al. depicts a data structure comprising a set of models. The models have parent/child relationships where the parent model is a prerequisite to the child model (col. 5, lines 36-37).

Figure 2 of Immerman et al. illustrates the parent/child relationships using pointed lines (col. 5, lines 37-41). For example, the "object data store model" is a parent of the indexing model, the security model, the agent workflow model, and the replication model. Some models have multiple parents. For example, the agent workflow model has three parents: the object data store model, the indexing model, and the security model.

The object data store model 92 is described at column 5, lines 41 through 55. As depicted in Fig. 2, the object data store model is a parent of all the models, except the local run time model 90 and includes an access control list (ACL) "that specifies the level of access that users and servers have to ... [each] data element" (col. 5, lines 47-48).

The security model is described in column 5, lines 55-62 and contains a collection of login credentials. The security model protects databases and controls access to documents.

The indexing model is described in column 5, line 64 through column 6, line 14. The indexing model has two indexes and allows users to search and view content in databases.

The replication model is described in column 6, lines 15 through 31. This model stores rules describing how to organize and synchronize databases.

The mail model is described in column 6, lines 39 through 49. This model stores rules for forwarding information between object data store locations.

2. Cheng

The Examiner relies on several portions of Cheng. First, the Examiner points out column 1, lines 52-65 found in the Background Of The Invention. This section discloses a prior art "integrated business process management system" used in computer integrated manufacturing and office automation. This section uses the terms "process model" and "role model" but does not explain their functions in detail. The process model appears to model business processes, and the role model refers to specific resources that play a role in performing a business process.

The Examiner also points out the "process model" in column 4, lines 49 through 60. This portion of the Summary of the Invention discloses a "process model" that "defines the control flow and coordination methods between a series of work tasks" (col. 4, lines 55-56).

Finally, the Examiner points out the "role model" in column 6. The only portion of column 6 mentioning a role model are lines 24 through 39. This portion teaches that prior art systems combined an "organizational model" with a "role model" while the system of Cheng separates them. Figure 2A illustrates such a prior art system while Fig. 2B illustrates the system of Cheng.

B. Claims 1 and 11

Due to similarity of language in claims 1 and 11 reciting distinguishing features of the invention, claims 1 and 11 are discussed together. However, the specific limitations recited in each claim are separately discussed and claims 1 and 11 stand or fall separately from each other.

The Examiner rejected claims 1 and 11 as unpatentable over Immerman et al. in view of Cheng. This rejection is improper because Immerman et al. and Cheng, taken individual or in combination, do not disclose the hierarchical structure recited in the claims or the particular models recited in the claims. Additionally, the Examiner failed to provide an adequate motivation to combine the references.

1. No disclosure of the claimed hierarchical structure

First, neither Immerman et al. nor Cheng, viewed individually or in combination, teach or suggest the particular hierarchical structure recited in claims 1 and 11. Specifically, the claims have a process model at a highest level. This model defines a process executed by a set of role models which are at a hierarchical level directly beneath the highest level model. Each of these

second tier models define an operation executed by a set of object models which are at the next lower hierarchical level. Finally, the hierarchical structure includes data models at a lowest level.

This particular hierarchical structure provides benefits that prior art systems lacked. For example, systems utilizing this structure can be transported to other software architectures (see, application, page 3, lines 16-23 and page 4, lines 8-11). Additionally, it simplifies designing a system structure that relates to a large scale integration circuit system (see, page 4, lines 13-18).

Immerman et al. does not disclose anything comparable to the hierarchy found in the claims. The structure shown in Fig. 2 of Immerman et al. does not teach models in a higher/lower hierarchical relationship. Instead, it teaches having parent/child relationships between models with multiple "children" for a single "parent" and multiple parents for a single child. Specifically, it teaches having certain parent models be "prerequisites" to child models. As the parent is a "prerequisite," the child depends upon the parent by having all the features and functionality of the parent. When a child has multiple parents, these children have the features of all the parents. For example, the replication model has three parents: the object data store model, the indexing model, and the security model.

On page 3, lines 1-7 of the Office Action, the Examiner appears to assert that the arrangement shown in Fig. 2 of Immerman et al. somehow corresponds to the hierarchical structure recited in the claims. Specifically, the Examiner seems to assert that the object data store model 92 corresponds to the data model level; that either security model 96 or indexing model 98 corresponds to the object model level; that replication model 94 corresponds to the role model level, and that mail model 97 corresponds to the process model level. However, as illustrated in Fig. 2 and discussed above, the object data store model is the parent of all of the models relied on by the Examiner. It should be easily understood that in a hierarchy a parent object is at a higher level than a child object. Therefore, to the degree that there is a hierarchy taught by Immerman et al., the block in Fig. 2 which is only a source for the arrows (the object data store model) would be at the top of the hierarchy and the block in Fig. 2 which is only an end for the arrows (the local run time model) would be at the bottom.

If the Examiner is correct that Fig. 2 of Immerman et al. illustrates hierarchical relationships, the object data store model would be at the highest level, the security and indexing models at the second highest level; the replication, mail and agent workflow models at the third highest level; and the local run time model at the lowest level. Thus, the object data store model would not correspond to the lowest level data model as recited in claims 1 and 11. Furthermore, there is no suggestion that the security and indexing models correspond to role models "repre-

senting the content of a process to be executed in the environment as a set of a plurality of object models" (claim 1, lines 10-11) or "defining at least one operation using a set of the object models" (claim 11, lines 5-6), because nothing has been cited or found in Immerman et al. suggesting that the models at the next lowest level which would correspond to object models, i.e., the replication and agent workflow models, to define a process or operation. Rather, Fig. 2 of Immerman et al. only shows parent/child relationships between various models of "a system ... provided for selective replication of databases within a workflow, enterprise, and mail-enabled web application server and platform ... [providing] administrator control ... [of] replication settings of a database which has been enabled for offline use" (Immerman et al., col. 2, lines 23-27). This is completely unrelated to the information processing apparatus and computer readable medium storing an object network of hierarchically arranged models recited in the claims.

Likewise, Cheng does not disclose anything comparable to the particular model hierarchy found in the claims. Although Figs. 2A, 2B, and 3 of Cheng disclose various examples of data structures, none of them disclose the particular four level hierarchical structure recited in the claims. The mere use of the terms "role model and ... process model" (e.g., Cheng, col. 1, lines 53-54) is insufficient to suggest totally changing whatever suggestion of a hierarchical structure might be contained in Immerman et al. As neither Immerman et al. nor Cheng, taken individually or in combination, disclose anything comparable to the four level hierarchical structure recited in claims 1 and 11, claims 1 and 11 are patentable over Immerman et al. in view of Cheng.

2. No disclosure of the models

Second, neither Immerman et al. nor Cheng, viewed individually or in combination, teach or suggest the particular models recited in the claims. Claim 11 recites a process model that defines "a dynamic process cooperatively executed by a set of the role models" (claim 11, last 2 lines). Claim 11 also recites a role model that defines "at least one operation using a set of the object models" (claim 11, lines 5-6). Claim 1, in addition to using similar limitations in defining the process and role models, recites a data model that represents "an attribute structure as a set of templates" (claim 1, line 7).

The Examiner admits that Immerman et al. does not disclose a process model (Office Action, page 3, lines 8-9), but cites two different "process models" in Cheng and asserts that they correspond to the process model of the claims. First, column 1, lines 52-65 of Cheng was cited which describes a "process model for an integrated system" (col. 1, line 54) used for a prior art business process management (BPM) system in a distributed and collaborative computer environment. Second, column 4, lines 49-60 of Cheng was cited which teaches a "process

model [that] defines the control flow and coordination methods between a series of work tasks" (col. 4, lines 55-56). Contrary to the Examiner's assertions, neither of these models correspond to a "process model defining a dynamic process cooperatively executed by a plurality of role models as one process" (claim 1, last 2 lines) or "a process model ... defining a dynamic process cooperatively executed by a set of the role models" (claim 11, last 2 lines).

The Examiner also admits that Immerman et al. does not disclose the role model of claims 1 and 11 (Office Action, page 3, lines 8-9). However, the Examiner asserts that the "role model" found in Cheng at column 1, lines 52-64 and column 4, lines 49-60 corresponds to the role model of claims 1 and 11. However, the role models described in Cheng relate to resources that play a certain role in performing a business process (Cheng, col. 13, lines 33-36). In contrast, claim 1 recites "the role model representing the content of a process to be executed in the environment as a set of a plurality of object models (claim 1, lines 9-11) and claim 11 recites "role models ..., each defining at least one operation using a set of the object models" (claim 11, lines 5-6). Nothing was cited or has been found in Cheng regarding how a business process is defined as a set of object models. Thus, the role model in Cheng is not equivalent to the role model of claims 1 and 11.

Furthermore, the Examiner asserts that the object data store model shown in Fig. 2 of Immerman et al. corresponds to the data model of claim 1. The Examiner's assertion is incorrect because the object data store model of Immerman et al. does not represent "an attribute structure as a set of templates" (claim 1, line 7). Instead, in column 5, lines 41-47, the object data store model of Immerman et al. is only described as including an access control element that specifies the level of access that users and servers have to data elements. This "access control element" is not comparable to "an attribute structure as a set of templates."

As neither Immerman et al. nor Cheng, taken individually or in combination, teach or suggest all the models recited in claim 1 or claim 11, claims 1 and 11 are patentable over these references.

3. No motivation to combine

The rejection is also improper because the Examiner failed to provide a proper motivation to combine Immerman et al. with Cheng. According to the Examiner,

> It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Immerman and Cheng's system because Cheng's models would provide the roles and full implementation of important models to

process a plurality of models in the hierarchical structure of Immerman's system.

(Office Action, page 3, last 5 lines). This motivation is improper for several reasons.

First, on its face, the Examiner's statement does not describe a rational reason to modify Immerman et al. based on Cheng. The Examiner asserts that modifying Immerman et al. to include the models in Cheng would "provide the roles and full implementation of important models." This reason appears to be circular because the Examiner seems to suggest applying the models of Cheng in order to "provide" the models of Cheng. The Examiner provides no explanation why one of ordinary skill would have desired to "provide the roles and full implementation of important models." For example, the Examiner failed to explain whether such a combination would improve the system of Immerman et al.

Second, applying the model of Cheng to the system of Immerman et al. renders the system of Immerman et al. unsatisfactory for its intended purpose. See, *In re Gordon*, 221 USPQ 1125, 1127, 733 F.2d 900 (Fed. Cir. 1984) and the other cases cited in M.P.E.P. § 2143.01. The system of Immerman et al. relies upon the particular structure shown in Fig. 2. Each model performs a particular function in the structure, and because of the parent/child relationships, the models share many of the same characteristics. The models of Cheng are unlike any of the models shown in Fig. 2 of Immerman et al. The system of Immerman et al. would not function properly if the models shown in Fig. 2 were replaced with or modified based on the models taught by Cheng.

Third, the Examiner fails to provide a source for the rationale the Examiner relies upon. Although a rational to modify does not have to be expressly stated in the prior art references, it must have a legitimate source such as the knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. See, *In re Fine*, 5 USPQ2d 1596, 1598, 837 F.2d 1071 (Fed. Cir. 1988) and the other cases cited in M.P.E.P. § 2144. As the Examiner fails to articulate any source for the rational relied upon, it appears the Examiner relies on knowledge available only from the applicant's disclosure.

C. Tertiary Prior Art

On pages 5-7 of the January 26, 2005 Office Action, the Examiner rejected claims 2 and 10 based on Immerman et al. in view of Cheng and further in view of Pandit and rejected claim 9 based on Immerman et al. in view of Cheng and further in view of "admitted prior art" on pages 1-3 of the application. However, there was no response in the January 26, 2005 Office Action to the arguments in the last two paragraphs on page 6 of the Amendment filed September 7, 2004

that Pandit and prior art WELL systems do not suggest modification of Immerman et al. and Cheng to meet the limitations recited in claims 1 and 11. Therefore, it is submitted that the Examiner has acknowledged the lack of suggestion to modify Immerman et al. and Cheng and that claims 1-11 patentably distinguish over any combination of the cited prior art if the rejections of claims 1 and 11 as unpatentable over Immerman et al. and Cheng are reversed.

VIII. Conclusion

For the reasons set forth above, it is submitted that claims patentably distinguish over the prior art. Thus, it is respectfully submitted that the Examiner's final rejection of the claims is without support and, therefore, erroneous. Accordingly, the Board of Patent Appeals and Interferences is respectfully urged to reverse the Examiner's final rejection.

The required fee in the amount of $500.00 is attached. If any additional fees are required, please charge same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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Claims Appendix

1. An information processing apparatus, having an object network as a language processing function and a common platform as an interface function with clients, for executing processes using an interface with concerned parties of the process and / or an environment, comprising:

an object contained within the object network having a hierarchical structure composed of

a data model representing an attribute structure as a set of templates;

an object model as a higher model than the data model;

a role model as a higher model than the object model, the role model representing the content of a process to be executed in the environment as a set of a plurality of object models; and

a process model as the highest model, the process model defining a dynamic process cooperatively executed by a plurality of role models as one process.

2. The information processing apparatus as set forth in claim 1, wherein the object model has:

a format model representing a pattern of a noun object and a verb object;

a feature model representing a feature of the object corresponding to an attribute value of the object and having a constraint condition corresponding to the environment; and

an object network model having a graph structure of which the name of the noun object is represented as a node and the name of the verb object is represented as a branch.

3. The information processing apparatus as set forth in claim 1, further comprising:

a process function kernel portion for executing a controlling process performed with an intervention of a user of the information processing apparatus using the name of a concerned party for the process of the object network and the name of a work performed by the concerned party.

4. The information processing apparatus as set forth in claim 1,

wherein the specifications of the data model, the object model, and the role model are statically defined, and

wherein the specifications of the process model are dynamically defined so that the validity of the process performed in the set of the plurality of object modes is assured

corresponding to a consistency constraint entity defined as an attribute of an object.

5. The information processing apparatus as set forth in claim 4, wherein an inconsistent constraint entity corresponding to the process model describes a validity predicate about the validity of the process and a control state for executing the process.

6. The information processing apparatus as set forth in claim 1,

wherein the hierarchical structure is further composed of:

a reference model for accomplishing a basic service to be executed in the process of the object network, the reference model being orthogonal to the hierarchical structure of the data model, the object model, the role model, and the process model.

7. The information processing apparatus as set forth in claim 6, wherein the concerned party of the process and the process function kernel portion of the information processing apparatus use a reference driving function so as to accomplish a service of the reference model.

8. The information processing apparatus as set forth in claim 6, wherein the specifications corresponding to a change of the environment are separately described as static adaptation specifications and dynamic adaptation specifications as a service accomplished with the reference model.

9. The information processing apparatus as set forth in claim 1, further comprising:

a WELL system as software using the object network and the common platform; and

software exporting means for exposing the WELL system to another software.

10. The information processing apparatus as set forth in claim 1, further comprising:

system structure designing means for designing a system structure in such a manner that noun objects and verb objects that compose the object network correlate with data paths as keywords of the system structure.

11. At least one computer readable medium storing an object network of hierarchically arranged models, comprising:

data models;

object models at a higher level than the data models;

role models at a higher level than the object models, each defining at least one operation

using a set of the object models; and

at least one process model, each defining a dynamic process cooperatively executed by a set of the role models.